CONTENTS OF VOLUME 14

NUMBER 1

Cover. **A. Narendra Nath** 1

Technical note. A method for the correction of sea surface temperatures derived from satellite thermal infrared data in an area of sunglint. **A. P. Cracknell** 3

Using geostatistics to merge *in situ* measurements and remotely-sensed observations of sea surface temperature. **F. Gohin and G. Langlois** ... 9

Calibration of the AVHRR visible and near-IR bands by atmospheric scattering, ocean glint and desert reflection. **Y. J. Kaufman and B. N. Holben** 21

Comparative study of AVHRR ratio vegetation index and normalized difference vegetation index in district level agricultural monitoring. **R. K. Gupta** 53

Scatterograms behaviour for AVHRR vegetation indices images over the crop growth cycle. **R. K. Gupta** 75

Longwave surface radiation over the globe from satellite data: An error analysis. **S. K. Gupta, A. C. Wilber, W. L. Darnell and J. T. Suttles** ... 95

Precipitation estimation over Sardinia from satellite infrared data. **M. Marrocu, A. Pompei, G. Dalu, G. L. Liberti and A. Negri** 115

Remotely-sensed quantification of covered areas and spatial resolution. **M. Raffy** 135

Evaluation of digitally processed geophysical data sets for the analysis of geological features in northern Ireland. **P. J. Gibson** 161

Remote Sensing Letters

Systematic navigation error on NOAA-12 AVHRR images. **P. Brunel and A. Marsouin** 171

Low cost satellite sensor image reception for NOAA HRPT and other compatible data. **J. F. R. Gower** 177

The apparent emissivity of vegetation canopies. **Dong Guoquan and Li Zhengzhi** 183

NUMBER 2

Cover 189

Monitoring vegetation changes in Al Madinah, Saudi Arabia, using Thematic Mapper data. **M. A. Alwashe and A. Y. Bokhari** 191

The use of multi-temporal NDVI measurements from AVHRR data for crop yield estimation and prediction. **N. A. Quarmby, M. Milnes, T. L. Hindle and N. Silleos** 199

One century of land use changes in the metropolitan area of Milan (Italy). **M. A. Gomarasca, P. A. Brivio, F. Pagnoni and A. Galli** 211
The effect of suspended sediment depth distribution on coastal water spectral reflectance: theoretical simulation. **L. Nanu and C. Robertson** 225
Satellite observations of phytoplankton variability on the Grand Banks of Newfoundland during a spring bloom. **K. S. Prasad and R. L. Haedrich** 241
Remote sensing observations and analyses of cooling water discharges from a coastal power station. **P. A. Davies and L. A. Mofor** 253
Radar imaging of thermal fronts. **F. Askari, G. L. Geernaert, W. C. Keller and S. Raman** 275
Quantitative analysis of sea ice remote sensing imagery. **R. Korsnes** ... 295
A mathematical approach to the segmentation of sea-ice SAR images. **R. Korsnes** 313
Development of a SAR data acquisition planning tool (SARPLAN) based on image simulation. **B. Guindon** 333
Characterization of spatial statistics of distributed targets in SAR data. **E. Rignot and R. Kwok** 345
Simulations of satellite-borne altimeter tracking system with transponder in calibration test. **Gao Zhen** 365
Technical note. A new fast classifier for remotely sensed imagery. **N. B. Venkateswarlu and P. S. V. S. K. Raju** 383
Book reviews 391

Remote Sensing Letters

The role of cloud albedo in the retrieval of concentrations from satellite sensor occultation measurements. **C. Cartalis** 395

NUMBER 3

Cover 401
The Kamishak Gap wind as depicted in DMSP OLS and SSM/I data **R. W. Fett** 403
SPOT multispectral data and digital terrain model for the analysis of ice-snow fields on arctic glaciers. **J. F. Parrot, N. Lyberis, B. Lefauconnier and G. Manby** 425
Relation between root zone soil moisture and normalized difference vegetation index of vegetated fields. **P. V. Narasimha Rao, L. Venkatratnam, P. V. Krishna Rao, K. V. Ramana and M. N. Singarao** 441
Interpretation of Bhaskara-II satellite microwave radiometer data in terms of land features. **K. S. Rao, P. V. Narasimha Rao, B. K. Mohan, M. V. R. Murthy, R. L. Karale and K. K. Narula** 451
Multifrequency passive microwave remote sensing of soil moisture and roughness. **S. Paloscia, P. Pampaloni, L. Chiarantini, P. Coppo, S. Gagliani and G. Luzi** 467
The limits on SAR resolution imposed by autofocus uncertainty. **C. J. Oliver** 485

High-frequency limits on SAR autofocus and phase correction. **C. J. Oliver** 495

Maps of spectral brightness coefficients for the U.S.S.R. territory and their statistical analysis. **K. Ya. Kondratyev, A. A. Grigoryev, G. A. Ivanian and G. A. Putintseva** ... 521

Comment on 'Aerosol and Rayleigh radiance contributions to Coastal Zone Colour Scanner images' by Eckstein and Simpson. **H. R. Gordon and R. H. Evans** ... 537

Quantitative use of passive optical remote sensing over coastal and inland water bodies. **H. T. C. van Stokkom, G. N. M. Stokman and J. W. Hovenier** ... 541

A simulation study of the ASTER sensor using a versatile general purpose rigid sensor modelling system. **M. A. O'Neill and I. J. Dowman** ... 565

Spectral characteristics of deforestation fires in NOAA/AVHRR images. **M. C. Pereira and A. W. Setzer** ... 583

Book reviews ... 599

Remote Sensing Letters

Suspected Mt. Pinatubo aerosol impact on the NOAA AVHRR NDVI over India. **A. T. Jeyaseelan and S. Thiruvengadachari** ... 603

Successional reflectance trajectories in northern temperate forests. **U. Peterson and T. Nilson** ... 609

The wavelet transform for the analysis of remotely sensed images. **T. Ranchin and L. Wald** ... 615

Remote sensing of submerged vegetation canopies for biomass estimation. **R. A. Armstrong** ... 621

NUMBER 4

Cover. Anomalous effects of sunglint on the AVHRR in the NOAA-12 satellite. **R. J. H. Brush** ... 629

The European Earth observation data processing and interpretation services: analysis of the sector and conditions for its development. **A. Bounfour and E. F. Lambin** ... 635

High resolution image processing on low-cost microcomputers. **R. L. Miller** 655

Engineering a scientific image processing toolbox for the Macintosh II. **R. A. Schowengerdt and G. Mehldau** ... 669

Estimating tree density in oak savanna-like 'dehesa' of southern Spain from SPOT data. **R. Joffre and B. Lacaze** ... 685

A classification method with a spatial–spectral variability. **K. Arai** ... 699

In vivo spectroscopy and internal optics of leaves as basis for remote sensing of vegetation. **C. Buschmann and E. Nagel** ... 711

Technical Note. Method for determining the atmospheric correction of data measured over the sea by thermovision camera mounted on an aircraft. **V. Pašgić and M. Popović** ... 723

An objective and optimal estimation approach to cloud-clearing for infrared sounder measurements. **V. Cuomo, R. Rizzi and C. Serio** 729

A comparison of wind speed measured by the Special Sensor Microwave Imager (SSM/I) and the Geosat altimeter. **J. A. Nystuen, J. E. Lilly and A. K. Goroch** 745

Limit of corner reflector concept to remote sensing of trees. **M. O. Kolawole** 757

The residual distortion of phase-corrected autofocused SAR images. **D. P. Belcher, R. G. White, C. J. Baker, and C. J. Oliver** 769

Remote Sensing Letters

Night-time TM short wavelength infrared data analysis of Barren Island volcano, South Andaman, India. **C. S. S. Reddy, A. Bhattacharya and S. K. Srivastav** 783

A comparison of monthly mean sea level variability determined from Geosat altimetry and a global tide gauge dataset. **S. A. Harangozo, P. L. Woodworth, R. H. Rapp and Y. M. Wang** 789

NUMBER 5

Cover 797

The use of the Thematic Mapper for the analysis of eutrophic lakes: a case study in the Netherlands. **A. G. Dekker and S. W. M. Peters** 799

Oceanographic laser remote sensing: measurement of hydrographic fronts in the German Bight and in the Northern Adriatic Sea. **R. Reuter, D. Diebel and T. Hengstermann** 823

Observed high temperatures in the sunglint area over the North Indian Ocean. **A. Narendra Nath, M. V. Rao and K. H. Rao** 849

An experimental study of microwave scattering from rain- and wind-roughened seas. **L. F. Bliven and J-. P. Giovanangeli** 855

Signature research for crop classification by active and passive microwaves. **U. Wegmüller** 871

Method for the quantification of suspended sediments from AVHRR NOAA-11 satellite data. **J. M. Froidefond, P. Castaing, J. M. Jouanneau, R. Prud'homme and A. Dinet** 885

Sorghum yield modelling based on crop growth parameters determined from visible and near-IR channel NOAA AVHRR data. **M. B. Potdar** ... 895

A simple model for estimating the daily upward longwave surface radiation flux from NOAA-AVHRR data. **J. P. Lagouarde and Y. Brunet** 907

Study of reflectance of Precambrian detritic rocks for structural analysis in the visible and near-infrafred. **A. Riaza** 927

Discriminating rock and surface types with multispectral satellite data in the Richtersveld, NW Cape Province, South Africa. **A. R. Newton and T. P. Boyle** 943

Image processing of Thematic Mapper data for discriminating piedmont surficial materials in the Tunisian Southern Atlas. **K. White** 961

Application of multiple data sets to structural studies on Varanger Peninsula, Northern Norway. **M. R. Karpuz, D. Roberts, O. Olesen, R. H. Gabrielsen and T. Herrevold** 979

Remote Sensing Letters

The effect of spatial resolution on the experimental variogram of airborne MSS imagery. **P. M. Atkinson** 1005

Infrared emissivities of Arctic land cover types. **W. G. Rees** 1013

NUMBER 6

Cover. Three-dimensional perspective view of Kuala Lumpur and its environs. **Mazlan Hashim** 1019

Monitoring environmental impacts of surface coal mining. **C. S. Rathore and R. Wright** 1021

Tectonique et trajectoires de texture: méthode et tests sur des données SPOT dans la Chaine Varisque Marocaine. **C. Le Corre et Y. Quete** 1043

Scattering laws for reflected solar radiation and the characterisation of terrain roughness. **N. D. Efford** 1055

Reflectance properties of West African savanna trees from ground radiometer measurements. II. Classification of components. **N. P. Hanan, S. D. Prince and J. Franklin** 1081

Pre-harvest state level wheat acreage estimation using IRS-IA LISS-I data in Punjab (India). **R. K. Mahey, R. Singh, S. S. Sidhu, R. S. Narang, V. K. Dadhwal, J. S. Parihar and A. K. Sharma** 1099

Measurement of pasture parameters from reflectance data. **K. R. McCloy, R. Schoneveld and D. Kemp** 1107

On the relationship between thermal emissivity and the normalized difference vegetation index for natural surfaces. **A. A. van de Griend and M. Owe** 1119

High resolution depiction of atmospheric moisture, stability and surface temperature from combined MAMS and VAS radiances. **C. C. Moeller, K. I. Strabala and W. P. Menzel** 1133

Linear mixing and the estimation of ground cover proportions. **J. J. Settle and N. A. Drake** 1159

Simple algorithm for the atmospheric correction of reflectance images. **L. Gonima** 1179

An automated image metrology system. **A. H. A. El-Beik and E. M. Masaad** 1189

Remote Sensing Letters

Remote sensing and agricultural statistics: crop area estimation through regression estimators and confusion matrices. **F. Gonazález-Alonso and J. M. Cuevas** 1215

An improved in-water algorithm for the determination of chlorophyll and suspended sediment concentration from Thematic Mapper data in coastal waters. **S. Tassan** 1221

Balance Contrast Enhancement using piecewise linear stretching. **R. V. Rahavan and R. C. Govil** 1231

Reflectance characteristics of arctic tundra vegetation from airborne radiometry. **D. A. Stowe, A. S. Hope and T. H. George** 1239

NUMBER 7

Cover 1245

Detecting water quality parameters in the Norfolk Broads, U.K., using Landsat imagery. **Serwan M. J. Baban** 1247

Quantitative remote sensing methods for real-time monitoring of inland waters quality. **A. Gitelson, G. Garbuzov, F. Szilagyi, K-H. Mittenzwey, A. Karnieli and A. Kaiser** 1269

Technical note. Identification of flood prone regions of Rapti river using temporal remotely-sensed data. **R. Nagarajan, G. T. Marathe and W. G. Collins** 1297

Observation of flooded ice in Arctic regions. **A. K. Goroch and R. W. Fett** 1305

Lake surface temperature estimation using NOAA satellite APT data. **J. N. Xin and S. F. Shih** 1325

Angular correction of sea surface temperature observed by thermal infrared radiometer. **S. Sugihara, T. Ishiyama and T. Yoshimura** 1339

Use of AVHRR data to verify a system for forecasting diurnal sea surface temperature variability. **J. D. Hawkins, R. M. Clancy and J. F. Price** ... 1347

A comparative analysis of standardised and unstandardised Principal Components Analysis in remote sensing. **L. Eklundh and A. Singh** ... 1359

Improvement in Maximum Likelihood Classification performance on highly rugged terrain using Principal Components Analysis. **C. Conese, G. Maracchi and F. Maselli** 1371

A mathematical model for the prediction of temperature of man-made and natural surfaces. **P. A. Hughes, T. J. L. McComb, A. B. Rimmer, K. E. Turver, M. L. B. Rodgers, A. F. Vickers and D. W. Wright** 1383

Errata 1413

Book reviews 1415

Remote Sensing Letters

Monitoring the Persian Gulf war with NOAA AVHRR data. **G. Stephens and M. Matson** 1423

Phytoplankton pigment patterns in the Canary Islands area as determined using Coastal Zone Colour Scanner data. **A. Hernández-Guerra, J. Arístegui, M. Cantón and L. Nykjaer** 1431

The influence of the percentage cover and biomass of clover on the reflectance of mixed pasture. **P. M. Atkinson and S. E. Plummer** 1439

NUMBER 8

Cover. Forest/non-forest classification of Madagascar from AVHRR data. **R. Nelson and N. Horning** ... 1445

The use of satellites to monitor global transmission of microbes. **C. Simmer and P. A. Volz** ... 1447

AVHRR-LAC estimates of forest area in Madagascar, 1990. **R. Nelson and N. Horning** ... 1463

Santa Barbara microwave backscattering model for woodlands. **Y. Wang, J. Day and G. Sun** ... 1477

NDVI—crop monitoring and early yield assessment of Burkina Faso. **S. M. E. Groten** ... 1495

Relating the Global Vegetation Index to net primary productivity and actual evapotranspiration over Africa. **D. Lo Seen Chong, E. Mougin and J. P. Gastellu-Etchegorry** ... 1517

The characterization of natural vegetation using first-order and texture measurements in digitized, colour-infrared photography. **R. J. Bijlsma** ... 1547

Red edge spectral measurements from sugar maple leaves. **J. E. Vogelmann, B. N. Rock and D. M. Moss** ... 1563

Interpretation of C- and X-band radar images over an agricultural area, the Flevoland test site in the Agriscatt-87 campaign. **D. H. Hoekman and B. A. M. Bouman** ... 1577

Multi-temporal, multi-frequency radar measurements of agricultural crops during the Agriscatt-88 campaign in The Netherlands. **B. A. M. Bouman and D. H. Hoekman** ... 1595

Directional spectrum of the sea surface and wind scatterometry. **A. Guissard** 1615

Bulletin ... 1635

NUMBER 9

Cover. Antarctic ice sheet topography mapped with the ERS-1 radar altimeter. **J. K. Ridley, S. Laxon, C. G. Rapley and D. Mantripp** ... 1649

Centres for space science and technology education: a United Nations initiative. **Adigun Ade Abiodun** ... 1651

Comparison of land surface temperatures derived from satellite observations with ground truth during FIFE. **M. Sugita and W. Brutsaert** ... 1659

Geological mapping and detection of oblique extensional structures in the Kenyan Rift Valley with a SPOT/Landsat-TM datamerge. **S. L. Jutz and J. Chorowicz** ... 1677

Assessment of sand dune change detection in Rajasthan (Thar) Desert, India. **M. Kumar, E. Goossens and R. Goossens** ... 1689

Colour additive viewing techniques for small-scale soil mapping in an area of Karimnagar district, Andhra Pradesh, India. **R. S. Reddy and F. W. Hilwig** ... 1705

Technical Note. A simple iterative method to improve Geosat along track sea surface height data. **H. M. Snaith** 1715

Technical Note. A direct evaluation of the Geosat altimeter wet atmospheric range delay using very long baseline interferometry observations. **C. J. Koblinsky, J. Ryan, L. Braatz and S. M. Klosko** 1723

Structure detection and statistical adaptive speckle filtering in SAR images. **A. Lopes, E. Nezry, R. Touzi and H. Laur** 1735

SAR speckle reduction by weighted filtering. **F. J. Martin and R. W. Turner** 1759

A laboratory study of friction-velocity estimates from scatterometry: low and high regimes. **L. F. Bliven, J.-P. Giovanangeli, R. H. Wanninkhof and B. Chapron** 1775

Applications of scatterometer winds in coastal areas. **T. H. Guymer and S. Zecchetto** 1787

Erratum 1813

Remote Sensing Letters

Specularly modified vegetation indices to estimate photosynthetic activity. **G. Rondeaux and V. C. Vanderbilt** 1815

Early results from 'Fuyo-1' Japan's Earth Resources Satellite (JERS-1). **Takashi Nishidai** 1825

NUMBER 10

Cover. Cloud Stereo from ATSR. **A. R. Harris** 1835

A remote sensing research agenda for mapping and monitoring biodiversity. **D. M. Stoms and J. E. Estes** 1839

The relationship between tussock tundra spectral reflectance properties and biomass and vegetation composition. **A. S. Hope, J. S. Kimball and D. A. Stow** 1861

Determination of microwave vegetation optical depth and single scattering albedo from large scale soil moisture and Nimbus/SMMR satellite observations. **A. A. van de Griend and M. Owe** 1875

The reflectance at the 950–970 nm region as an indicator of plant water status. **J. Peñuelas, I. Filella, C. Biel, L. Serrano and R. Savé** 1887

Calibration adjustment of the NOAA AVHRR Normalized Difference Vegetation Index without recourse to component channel 1 and 2 data. **S. O. Los** 1907

Mapping of salt-affected land in Saurashtra coast using Landsat satellite data. **M. D. Joshi and B. Sahai** 1919

On the use of passive microwaves at 37 GHz in remote sensing of vegetation. **Y. H. Kerr and E. G. Njoku** 1931

Validation of microwave radiometer geophysical parameters using meteorological model analyses. **L. Eymard, R. Bernard and J.-Y. Lojou** 1945

SAR imaging by $\omega-k$ migration. **A. S. Milman** 1965

Navigation of satellite measurements without ground control points. **J. Straka, J. Klokočník and H. Graßl** 1981

Identification of clear and cloudy pixels at high latitudes from AVHRR radiances. **N. K. Sakellariou, H. G. Leighton and Z. Li** 2005

Effect of atmospheric absorption and surface emissivity on the determination of land surface temperature from infrared satellite data. **C. Ottlé and M. Stoll** 2025

Conference Announcement. EGIS '94 2039

Remote Sensing Letters

Inference of the reversal of mixed layer zonal slope along the Equatorial Indian Ocean using Geosat altimeter data. **M. M. Ali** 2043

NUMBER 11

Cover 2051

Ozone depletion over Greece as deduced from Nimbus-7 TOMS measurements. **C. A. Varotsos and A. P. Cracknell** 2053

Spectral characteristics of fire scars in Landsat-5 TM images of Amazonia. **M. C. Pereira and A. W. Setzer** 2061

Dynamiques de saturation du signal dans la bande 3 du senseur AVHRR: Handicap majeur ou source d'information pour la surveillance de l'environnement en milieu soudano-guinéen d'Afrique de l'Ouest?. **J.-M. Grégoire, A. S. Belward et P. Kennedy** 2079

Radiative transfer modelling of discontinuous tree canopies at microwave frequencies. **K. C. McDonald and F. T. Ulaby** 2097

Linear regressions for canopy cover estimation in Acacia woodlands using Landsat-TM, -MSS and SPOT HRV XS data. **H. Larsson** 2129

Spatial structure, sampling design and scale in remotely-sensed imagery of a California savanna woodland. **K. McGwire, M. Friedl and J. E. Estes** ... 2137

Tropical vegetation mapping with combined visible and SAR spaceborne data. **E. Nezry, E. Mougin, A. Lopes, J. P. Gastellu-Etchegorry and Y. Laumonier**... 2165

Observations of the fractal properties of the Japan Sea surface temperature patterns. **L. A. Bunimovich, A. G. Ostrovskii and S. Umatani** 2185

Eddies detected in ERS-1 SAR images and simulated in reduced gravity model. **J. A. Johannessen, L. P. Røed and T. Wahl** 2203

Remote sensing for mapping of suspended sediments in Krishna Bay Estuary, Andhra Pradesh, India. **M. Anji Reddy** 2215

Remote Sensing Letters

The use of a vegetation index for assessment of the urban heat island effect. **K. P. Gallo, A. L. McNab, T. R. Karl, J. F. Brown, J. J. Hood and J. D. Tarpley**... 2223

Linear mixing model applied to coarse spatial resolution data from multispectral satellite sensors. **Brent N. Holben and Yosio E. Shimabukuro** 2231

NUMBER 12

Cover. Senegalese fire activity during the 1989–90 dry season deduced from NOAA AVHRR night time images. **S. Langaas** 2241

A parametrised bispectral model for savanna fire detection using AVHRR night images. **S. Langaas** 2245

The evaluation of different algorithms for bathymetric charting of lakes using Landsat imagery. **S. M. J. Baban** 2263

Experiments in site selection for coastal aquaculture using Indian remote sensing satellite: IRS-1A. **R. Sudarshana, S. K. Bhan, M. S. Siddiqui, T. P. S. Vohra, P. N. Prasad, U. G. Bhat and B. Neelakantan** 2275

Dye concentration estimation by remotely-sensed spectral radiometry. **O. Zalloum, E. O'Mongain, J. Walsh, S. Danaher and L. Stapleton** ... 2285

Shallow water waves observed by a VHF groundwave Doppler radar. **P. Proche and P. Forget** 2301

An analysis of scatterometer returns from a water surface agitated by artificial rain: evidence that ring-waves are the main feature. **L. F. Bliven, H. Branger, P. Sobieski and J-P. Giovanangeli** 2315

Empirical relations between digital SPOT HRV and CASI spectral response and lodgepole pine (*Pinus contorta*) forest stand parameters. **S. E. Franklin and G. J. McDermid** 2331

A GIS based methodology for small scale monitoring of tropical forests—a case study in Sumatra. **J. P. Gastellu-Etchegorry, C. Estreguil, E. Mougin and Y. Laumonier** 2349

On the relation between rainfall and the Normalized Difference Vegetation Index for diverse vegetation types in East Africa. **M. L. Davenport and S. E. Nicholson** 2369

Remote sensing at the Centre for Geophysical Research, University of Costa Rica. **J. A. Amador, A. S. Burgos, F. J. Soley, G. Serpas and A. Vargas** 2391

Remote Sensing Letters

Coefficient of variation as a measure of urban spatial attributes, using SPOT HRV and Landsat TM data. **B. C. Forster** 2403

Competitive learning networks for unsupervised training. **C.-C. Hung** ... 2411

Using landscape trajectories to assess the effects of radiometric rectification. **G. M. Henebry and H. Su** 2417

NUMBER 13

Cover 2425

Regional noise prediction and management system using remote sensing. **H. Koi, S-I. Fujita, I. Aoi, H. Tamura and K. Hiramatsu** 2427

Spectral, spatial and temporal characteristics of Arctic tundra reflectance. **D. A. Stow, B. H. Burns and A. S. Hope** 2445

Intercalibration of two airborne thermal infrared radiometers: TIMS and PRT5. Application of land surface temperature retrieval. **M. Stoll, T. Phulpin and T. Schmugge** 2463

Relationship between satellite microwave radiometric data, antecedent precipitation index, and regional soil moisture. **W. L. Teng, J. R. Wang and P. C. Doraiswamy** 2483

Linear polarization measurements of a wheat canopy. **R. Ghosh, V. N. Sridhar, H. Venkatesh, A. N. Mehta and K. I. Patel** 2501

Procedures for wheat yield prediction using Landsat MSS and IRS-1A data. **T. Sharma, K. S. Sudha, N. Ravi, R. R. Navalgund, K. P. Tomar, N. V. K. Chakravarty and D. K. Das** 2509

Forest ecosystem processes at the watershed scale: sensitivity to remotely-sensed Leaf Area Index estimates. **R. Nemani, L. Pierce, S. Running and L. Band** 2519

Pasture status in a semi-arid grassland. **H. D. Williamson and D. J. Eldridge** 2535

Combined interpolation—restoration of Landsat images through FIR filter design techniques. **L. M. G. Fonseca, G. S. S. D. Prasad and N. D. A. Mascarenhas** 2547

Spatial post-processing of spectrally classified video images by a piecewise linear classifier. **Kai-Yi Huang and P. W. Mausel** 2563

NUMBER 14

Cover. Water quality assessment of the Lake Chilka. **S. Sudhakar and D. K. Pal** 2575

Statistical overlay: an experiment with AVHRR and IBAMA TM interpretations. **J. W. van Roessel** 2581

Supervised and unsupervised classification by histogram overlay techniques. **Y. Inomata and S. Ogata** 2605

Linear feature enhancing by Hyperbolic-Gaussian filtering. **Niño, L. Rivera and J.-C. Pion** 2617

Air-sea interacting effects to the sea surface temperature observation by NOAA/AVHRR. **R. Yokoyama, S. Tanba and T. Souma** 2631

Foam lines generated by a spreading buoyant plume. **P. A. Davies, L. A. Mofor and Y. Jiao** 2647

A united model for quantitative remote sensing of suspended sediment concentration. **Li Xia** 2665

Synergistic effects of combined Landsat-TM and SIR-B data for forest resources assessment. **D. F. Lozano-Garcia and R. M. Hoffer** 2677

Sahelian rangeland production in relation to rainfall estimates from Meteosat. **R. Bonifacio, G. Dugdale and J. R. Milford** 2695

Reflectance, green leaf area index and ear hydric status of wheat from anthesis until maturity. **P. Boissard, J.-G. Pointel and P. Huet** 2713

Spectral discrimination and mapping of waterlogged cereal crops in Western Australia. **J. F. Wallace, N. A. Campbell, G. A. Wheaton and D. J. McFarlane** 2731

NUMBER 15

Cover. NASA Electronic Still Camera (ESC) System used to image the Kamchatka Volcanoes from the Space Shuttle. **Kamlesh Lulla and S. Douglas Holland** 2745

Detecting and evaluating the influence of water depth, volume and altitude on the variations in the surface temperature of lakes using Landsat imagery. **Serwan M. J. Baban** 2747

Remote sensing of sea water quality parameters using Landsat-TM. **B. C. Forster, Sha Xingwei and Xu Baide** 2759

Water vapour in the atmospheric boundary layer over oceans from SSM/I measurements. **J. Schulz, P. Schluessel, and H. Grassl** 2773

Reflectance calibration of aerial video imagery with automatic gain compensation on and off. **A. J. Richardson, J. H. Everitt and D. E. Escobar** 2791

Estimating the characteristics of vegetation canopies with airborne radar measurements. **L. Prevot, M. Dechambre, O. Taconet, D. Vidal-Madjar, M. Normand and S. Galle** 2803

Simulated and observed L-HH radar backscatter from tropical mangrove forests. **Y. Wang and M. L. Imhoff** 2819

Simulation of high resolution radar polarimetric images—unified full wave approach. **E. Bahar and R. D. Kubik** 2829

Soil erosion assessment and simulation by means of SGEOS and ancillary digital data. **C. Jürgens and M. Fander** 2847

Detectability of land systems by classification from Landsat Thematic Mapper data. Virunga National Park (Zaïre). **M. Vanoverstraeten and P. Trefois** 2857

Technical Note. Comparison of broadband and high-spectral resolution infrared observations. **S. A. Ackerman, W. L. Smith and H. E. Revercomb** 2875

Conjugate-gradient neural networks in classification of multisource and very-high-dimensional remote sensing data. **J. A. Benediktsson, P. H. Swain and O. K. Ersoy** 2883

NUMBER 16

Cover. Mt. Spurr Ash Plume. **G. Stephens** 2905

Volcano monitoring using remote sensing data. **R. K. Gupta and K. V. S. Badarinath** 2907

Analysis of Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) data of volcanic hot spots. **C. Oppenheimer, D. A. Rothery, D. C. Pieri, N. J. Abrams and V. Carrere** 2919

Reflectance spectra of minerals and their discrimination using Thematic Mapper, IRS and SPOT multi-spectral data. **S. M. Ramasamy, V. Venkatasubrmanian and S. Anbazhagan** 2935

TM-Landsat imagery applied to the study of the impact of global climate change on a tropical coastal environment during the last deglaciation. **M. L. Vianna, A. P. Cabral and D. F. M. Gherardi** 2971

Review essay. Satellite remote sensing of marine pollution. **C. D. Clark** ... 2985
Interferometric SAR imagery of a monochromatic ocean wave in the presence of the real aperture radar modulation. **L. Shemer** 3005
Estimates of ocean coherence time by an interferometric SAR. **L. Shemer and M. Marom** 3021
Integrated water vapour content by scanning radiometry. **A. K. Sen, R. Bera, M. K. Sengupta, Ajoy K. Datta, G. Tarafder, S. Chattopadhyay, M. K. Dasgupta, O. P. N. Calla and S. S. Rana** 3031
Geometric correction of airborne scanner imagery using orthophotos and triangulated feature point matching. **L. C. Chen and J. Y. Rau** 3041
Characterizing tropical secondary forests using multi-temporal Landsat sensor imagery. **R. M. Lucas, M. Honzak, P. J. Curran, G. M. Foody and C. Corves** 3061
Infrared emissivity of Arctic winter snow. **W. G. Rees** 3069

NUMBER 17

Special issue: ICORG-92 Remote Sensing Applications and Geographic Information Systems Recent Trends

Preface. **A. P. Cracknell** 3077
Cover 3079
Assessing growth and yield of wheat using remotely-sensed canopy temperature and spectral indices. **D. K. Das, K. K. Mishra and N. Kalra** 3081
Grassland mapping/monitoring of Banni, Kachchh (Gujarat) using remotely-sensed data. **R. N. Jadhav, M. M. Kimothi and A. K. Kandya** 3093
Temporal and multisensor approach in forest/vegetation mapping and corridor identification for effective management of Rajaji National Park, Uttar Pradesh, India. **T. S. Kachhwaha** 3105
Design and development of a spectro-polarimeter for ground truth data collection. **S. S. Manjul and S. D. Verma** 3115
Application of thematic mapper short wavelength infrared data for the detection and monitoring of high temperature related geoenvironmental features. **C. S. S. Reddy, S. K. Srivastav and A. Bhattacharya** 3125
A satellite-borne laser altimeter for digital terrain modelling. **R. Seshamani** 3133
Application of remote sensing in rattan resource survey—a case study from Kerala, India. **U. N. Nandakumar and A. R. R. Menon** 3137
Transportation planning from remote sensing—a case study of the Tuni region in Andhra Pradesh, India. **K. M. Lakshman Rao and M. A. Reddy** ... 3145
Application of Landsat imagery in terrain analysis of Mahanadi Basin for rational land-use planning. **Gayatri Prasad Pandey** 3157
District level planning—a case study for the Panchmahals district using remote sensing and Geographic Information System techniques. **Ranendu Ghosh, R. K. Goel, B. S. Lole, T. P. Singh, K. L. N. Sastry, J. G. Patel, Y. V. Vanikar, P. S. Thakker and R. R. Navalgund** 3163

Urban growth trend analysis using GIS techniques—a case study of the Bombay metropolitan region. **S. K. Pathan, S. V. C. Sastry, P. S. Dhinwa, Mukund Rao, K. L. Majumdar, D. Sampat Kumar, V. N. Patkar and V. N. Phatak** 3169

Mapping applications for low-cost remote sensing and geographic information systems. **P. Chagarlamudi and G. W. Plunkett** 3181

Remote sensing application in monitoring land-use changes in arid Rajasthan. **Balak Ram and A. S. Kolarkar** 3191

An integrated PC environment for assessment of drought. **S. Thiruvengadachari and H. R. Gopalkrishna** 3201

Application of remote sensing and GIS in water resource management. **S. K. Sharma and D. Anjaneyulu** 3209

Landform analysis and ground water potential in the Bist Doab area, Punjab, India. **Rajiv Chopra and P. K. Sharma** 3221

Identification of overdeveloped zones of ground water and the location of rainwater harvesting structures using an integrated remote sensing based approach—a case study in part of the Anantapur district, Andhra Pradesh, India. **R. S. Rao, M. Venkataswamy, C. Mastan Rao and G. V. A. Rama Krishna** 3231

Watersheds prioritisation using remote sensing techniques—a case study of the Mahbubnagar district, Andhra Pradesh, India. **K. S. S. Prasad, S. Gopi and R. S. Rao** 3239

Wasteland development using Geographic Information System techniques. **R. M. Novaline Jaga, A. Sundaram and T. Natarajan** 3249

Monitoring snow area and depth with integration of remote sensing and GIS. **Hui Xu, J. O. Bailey, E. C. Barrett and R. E. J. Jelly** 3259

Geomorphological studies for disaster mitigation—a case study of the Krishna Delta, Andhra Pradesh, India. **M. V. Ramana Murty, R. S. Rao and S. V. B. K. Bhagavan** 3269

Remote sensing of folds and shear zones—a case study from the Delhi Supergroup around Beawar, district Ajmer, Rajasthan, India. **B. S. Patil and R. R. Patil** 3275

Use of aerospace data for uranium exploration in parts of Southern Bastar, Central India. **A. S. Chawla, S. N. Kak and Ravi Kaul** 3281

Application of remote sensing techniques for nuclear power project site selection in India. **V. J. Katti, Y. R. Satya Saradhi, S. N. Kak, D. C. Banerjee and Ravi Kaul** 3291

Primary production estimates on the Grand Banks of Newfoundland, northwest Atlantic Ocean, derived from remotely-sensed chlorophyll. **K. S. Prasad and R. L. Haedrich** 3299

Location of tuna resources in Indian waters using NOAA AVHRR data. **Beena Kumari, Mini Raman, A. Narain and T. E. Sivaprakasam** ... 3305

Paleoshorelines and coastal processes in Dakshina Kannada, Karnataka, India: a study based on remotely-sensed data. **H. Gangadhara Bhat and K. R. Subrahmanya** 3311

Impact of satellite remote sensing on ocean modelling—an overview. **H. Honne Gowda, B. Manikiam, V. Jayaraman and M. G. Chandrasekhar** ... 3317

An overview of the remote sensing programme at King Abdulaziz University, Saudi Arabia. **P. Chagarlamudi, M. A. Alwash and F. A. Zakir** 3333
Effective implementation of maximum clustering for remotely-sensed images. **N. B. Venkateswarlu and P. S. V. S. K. Raju** 3343
SACIMAGE—image processing software library. **C. V. S. Prakash, I. C. Matieda, D. Dhar, Satishkumar, P. Geeta and H. Garg** 3353

NUMBER 18

Cover. Photosynthetically active radiation absorbed by global land vegetation in August 1984. **D. G. Dye and S. N. Goward** 3361
Objective assessment of the NOAA global vegetation index data product. **S. N. Goward, D. G. Dye, S. Turner and J. Yang** 3365
Assessing the relationship between spectral vegetation indices and shrub cover in the Jornada Basin, New Mexico. **J. Duncan, D. Stow, J. Franklin and A. Hope** 3395
Correction of atmospheric effects of satellite remote sensing data (Landsat, MSS-NOAA AVHRR) for surface canopy investigations. **Cs. Ferencz, Gy. Tarcsai and J. Lichtenberger** 3417
Crop area estimates through remote sensing: stability of the regression correction. **F. J. Gallego, J. Delince and C. Rueda** 3433
Relaxation vegetation index in non-linear modelling of ground plant cover by satellite remote-sensing data. **H. C. Zhuang, M. Shapiro and C. F. Bagley** 3447
Environmental monitoring and crop forecasting in the Sahel through the use of NOAA NDVI data. A case study: Niger 1986–89. **F. Maselli, C. Conese, L. Petkov and M. A. Gilbert** 3471
Using remote sensing and Geographic Information Systems for analysing landscape/drought interaction. **B. C. Reed** 3489
Errata 3505
Index of Authors (with titles of papers) 3507